

REMARKS

At the outset, the Examiner is thanked for the thorough review and consideration of the pending application. The Notice of Non-Compliant Amendment dated June 22, 2005 has been received and its contents carefully reviewed. Applicants have corrected the claims and the discussion of claim 7 in the remarks accordingly.

Claims 5–6, 9, 11–12, and 14–18 are currently pending. Claim 7 has been canceled to reflect the Amendment filed on June 12, 2004. Reexamination and reconsideration of the pending claims are respectfully requested.

In the Office Action, claims 9, 11, 12, and 14 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicant's Related Art (hereinafter "ARA") in view of U.S. Patent No. 6,022,753 to Park et al. (hereinafter "Park") in view of U.S. Patent 6,077,643 to Kumar et al. (hereinafter "Kumar"). Claims 5, 6, and 15-18 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicant's Related Art (hereinafter "ARA"), Park, and Kumar further in view of U.S. Patent 6,159,654 to Machida et al. (hereinafter "Machida").

Applicants respectfully traverse the rejection of independent claim 14 and request reconsideration. Claim 14 is allowable because it recites "wherein the negative-type photoresist is coated with a thickness of 1.0 to 2.0 μ m and soft-baked at a temperature between 100°C to 125°C before exposure." The Examiner cites Kumar as teaching this limitation. Applicants respectfully assert that Kumar fails to teach or suggest at least this feature of the claimed invention. For example, Kumar teaches a "Photoresist A" which is coated an 7320Å (col. 11, ll. 66–67) and then soft baked at 135°. (Col. 12, l. 2). The "120° softbake" cited by the Examiner pertains to a separate example in the specification (col. 12, l. 67), for which no thickness is taught. Further, the Examiner cites Kumar as teaching a thickness of "1750 angstroms." (Col. 13, l. 14). Applicants respectfully point out that this term refers to "a dissolution rate of approximately 1750 angstroms per second," which is a distinct concept from thickness.

Finally, Applicants respectfully point out that Kumar teaches use of a positive photoresist and assert that there is no motivation to combine Kumar with Park and ARA. This

issue was touched on earlier. In the Advisory Action dated June 17, 2004 (Paper No. 20040612), the Examiner stated “even though using positive resist the reference discloses the normal coating thickness and baking temperature, and the thickness such as 0.73 μm , temperature ranges are overlap and close enough, so that a prima facie case of obviousness exists.” (citing MPEP 2144.05 I). Applicants respectfully point out that negative and positive photoresists are soft baked at different temperatures based on the difference in materials and solvents used in positive and negative photoresists. For example, soft-baking is used to remove the solvent used for depositing the photoresist on the substrate. Furthermore, because of these differences, the working conditions, results, and purposes of the positive photoresist processes are different from those in the negative photoresist processes.

Accordingly, there is nothing in the references to motivate one of ordinary skill in the art to apply the soft-baking of the positive photoresist to a negative photoresist. In addition, there is no teaching whatsoever of how such a combination could be achieved in fact.

The Examiner cites Nakano as teaching a negative photoresist thickness of 1.0 μm . Applicants respectfully submit that Nakano fails to cure the deficiency of Kumar, Park, and ARA to teach or suggest the elements of the recited elements of the claim 14 above. Although Nakano states “a thickness of 1.0 μm ,” Nakano does not teach soft baking, but instead teaches “[t]hen ... the negative type photoresist was selectively exposed.” (Col. 26, ll. 20–21).

Accordingly, Applicants respectfully submit that claim 14, and claims 9, 11–12 and 15–18, which depend from claim 14, are allowable over ARA, Park, Kumar, and Nakano.

Applicants respectfully traverse the rejection of claims 5 and 6. Independent claim 5 is allowable over ARA, Park, Kumar, Nakano, and Machida in that it recites “wherein the negative-type photoresist is coated with a thickness of 1.0 to 2.0 μm and soft-baked at a temperature between 100°C to 125°C before exposure.” Nothing in the cited references teaches or suggests at least this feature of the claimed invention, for the same or similar reasons as those regarding independent claim 14. The additional reference, Machida, fails to cure the deficiency of ARA, Park, Kumar, and Nakano to teach or suggest this feature. Accordingly, Applicants

respectfully submit that claim 5 and claim 6, which depends from claim 5, are allowable over the ARA, Park, Kumar, Nakano, and Machida.

Applicants believe the foregoing amendments place the application in condition for allowance and early, favorable action is respectfully solicited.

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at (202) 496-7500 to discuss the steps necessary for placing the application in condition for allowance. All correspondence should continue to be sent to the below-listed address.


If these papers are not considered timely filed by the Patent and Trademark Office, then a petition is hereby made under 37 C.F.R. §1.136, and any additional fees required under 37 C.F.R. §1.136 for any necessary extension of time, or any other fees required to complete the filing of this response, may be charged to Deposit Account No. 50-0911. Please credit any overpayment to deposit Account No. 50-0911. A duplicate copy of this sheet is enclosed.

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Attachments

Respectfully submitted,

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